UNION SWITCH & SIGNAL

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Style "S"
Electro-Pneumatic Train Stop

Part Numbers
N293126
N329366
N329366-001
N329366-002

♦ Installation

♦ Operation

♦ Maintenance

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SM 5434, Rev. 3, February 2007

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Revision History

Rev.	Date	Nature of Revision
Original	April 1997	Original Issue
1	April 2003	Incorporated ECO 139712-138. Section 4.2.1.1, dealing with contact spring adjustment, was revised. Incorporated ECO 139712-176. New installation figures and associated parts list were added (Figures 2-1 through 2-4). New illustration was added to show lube points (Figures 4-1 and 4-2). Parts lists and illustrations in Appendix A were all updated. Format and editorial changes were made.
2	May 2005	Incorporated ECO CRS01319. Added new pre-bent contacts to the circuit controller and revised the tolerances on controller adjustments. Updated the parts list.
3	February 2007	Incorporate ECO EM2355. Removed Part Numbers N330549 and N3305490001 from this manual and made changes associated with removing these two part numbers.

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1 General

The Style “S” Electro-Pneumatic Train Stop (Figure 1-1) is a light-weight, rugged device which controls the position of a lever arm on the rail ties. The lever arm can be positioned to impact the air release valve on a rail car to dump the brake air pressure system, thus activating the brakes on the train and causing the train to stop. The Train Stop ensures that a passing train does not continue moving if a restrictive cab signal aspect is ignored.

The Train Stop is usually provided for left-hand installation with a shaft that allows the tripper arm to be mounted on either side of the unit.

1.1 Description

1.1.1 Operating Mechanism

The Train Stop uses air pressure working against a helical coil spring to force the tripper arm to the Clear position. A minimum of 60 psi of air pressure is required to drive the tripper arm to the Clear position. When air pressure drops to approximately 30 psi the tripper arm will move to the Stop position. Tripper arm travel is approximately 60°.

The outboard bearing is self-aligning to allow variations in mounting and ensure freedom from binding. A coupling in the drive shaft is available with spherical bearing surfaces for centering the drive shaft with the mechanism and to compensate for misalignment.

1.1.2 Circuit Controller

The circuit controller (Figure 1-2) is driven by a pair of rocker arms actuated by a cam on the drive shaft. The controller has a total of 10 contacts. Two of the contacts (numbers 1 and 10) are always made indicating Stop or Clear positions.

Of the remaining eight contacts, three (contacts 7 - 9) will be closed and five (contacts 2 - 6) will be open in the Stop position. In the Clear position this configuration is reversed – contacts 7 - 9 will be open and contacts 2 - 6 will be closed.

1.2 Specifications

Parameter	Specification
Operating Air Pressure	60 psi min.
Pressure to Achieve Clear Position	55 psi or more
Pressure to Achieve Stop Position	30 psi or less
Tripper Arm Travel	56° to 60°

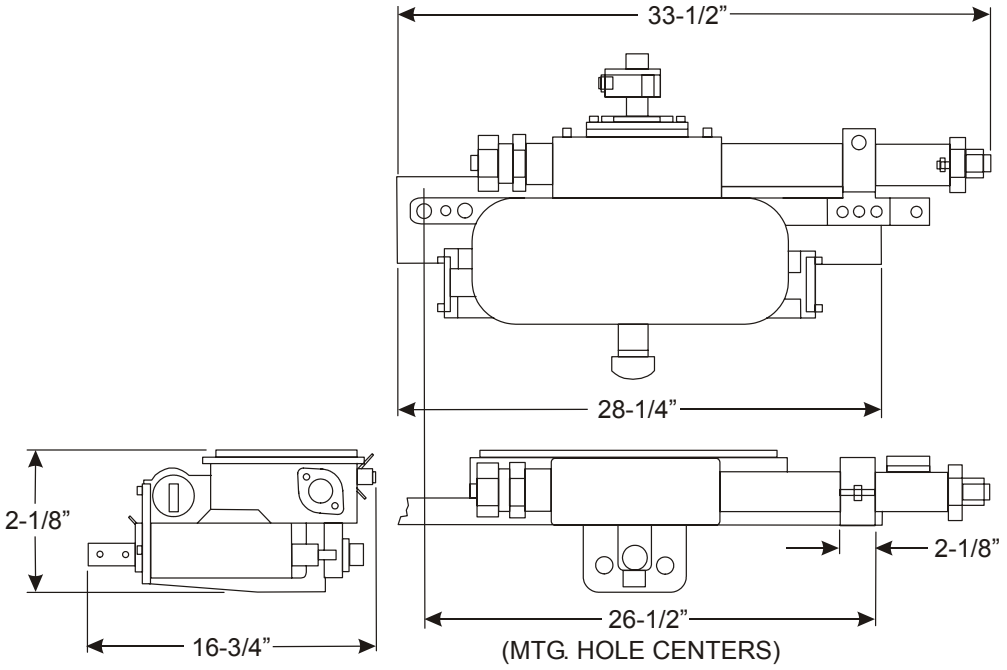


Figure 1-1 - Typical Type “S” Electro-Pneumatic Train Stop with Approximate Dimensions

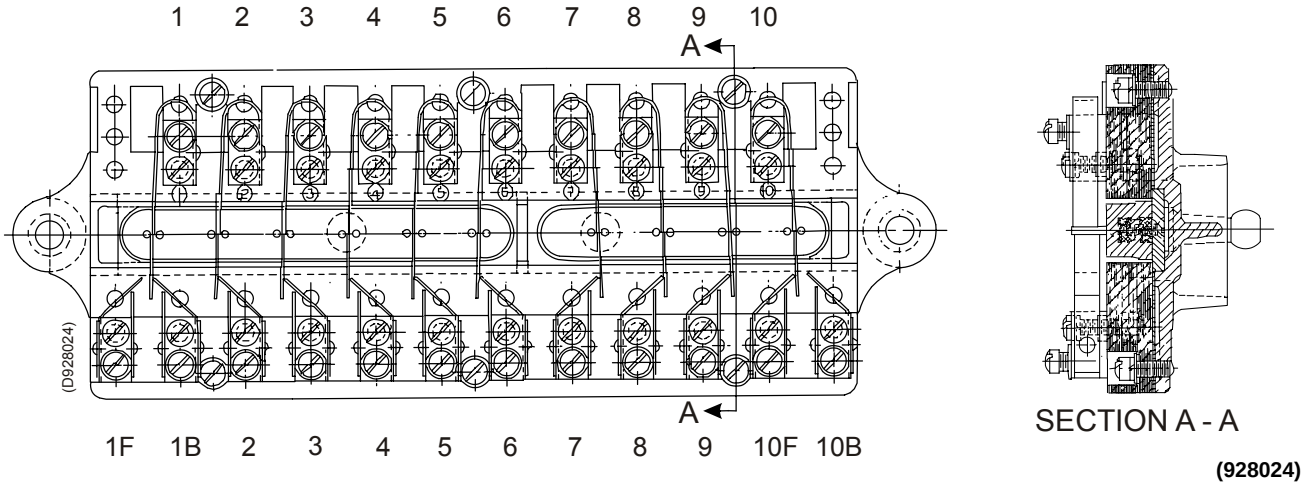


Figure 1-2 - Circuit Controller (Shown in the Stop Position)

2 Installation

2.1 General

When installing the train stop, the specific layout drawings should be followed in every detail. See Figure 2-1 through Figure 2-4 for typical layouts. Please contact the US&S RAIL Team (Section 6) for specific layout information and customer applications.

NOTE

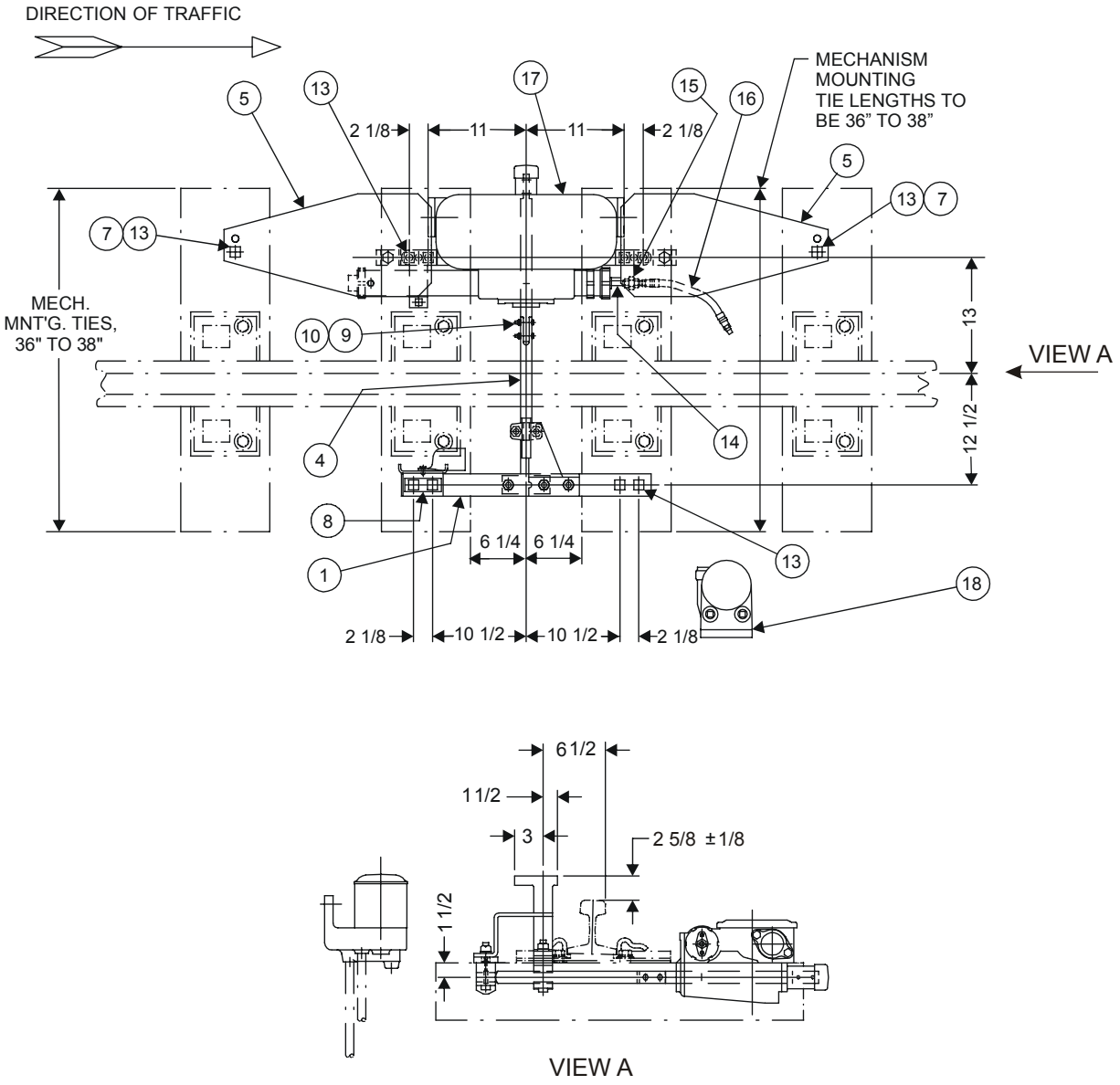
Figures 2-1 through 2-4 show typical layouts only and are not to be used for specific installations. For installation details, consult the specific layout drawings for the specific location of the train stop.

2.2 Mounting

Care should be taken when mounting the outboard bearing (Item 1, Figures 2-1, 2-2, and 2-3) so that there is no end play in the tripper arm shaft (Item 4, Figures 2-1, 2-2, and 2-3), but not tight enough to bind the shaft endwise. With the mechanism in the Stop position, the tripper arm (Item 3, Figure 2-4) shall rest against the stop bracket (Item 19, Figure 2-4) attached to the outboard bearing support. When the tripper arm is held in the Clear position by the emergency hook (Item 2, Figure 2-4), the contacts that are closed in the Clear position must be dependably closed.

2.3 Lubrication

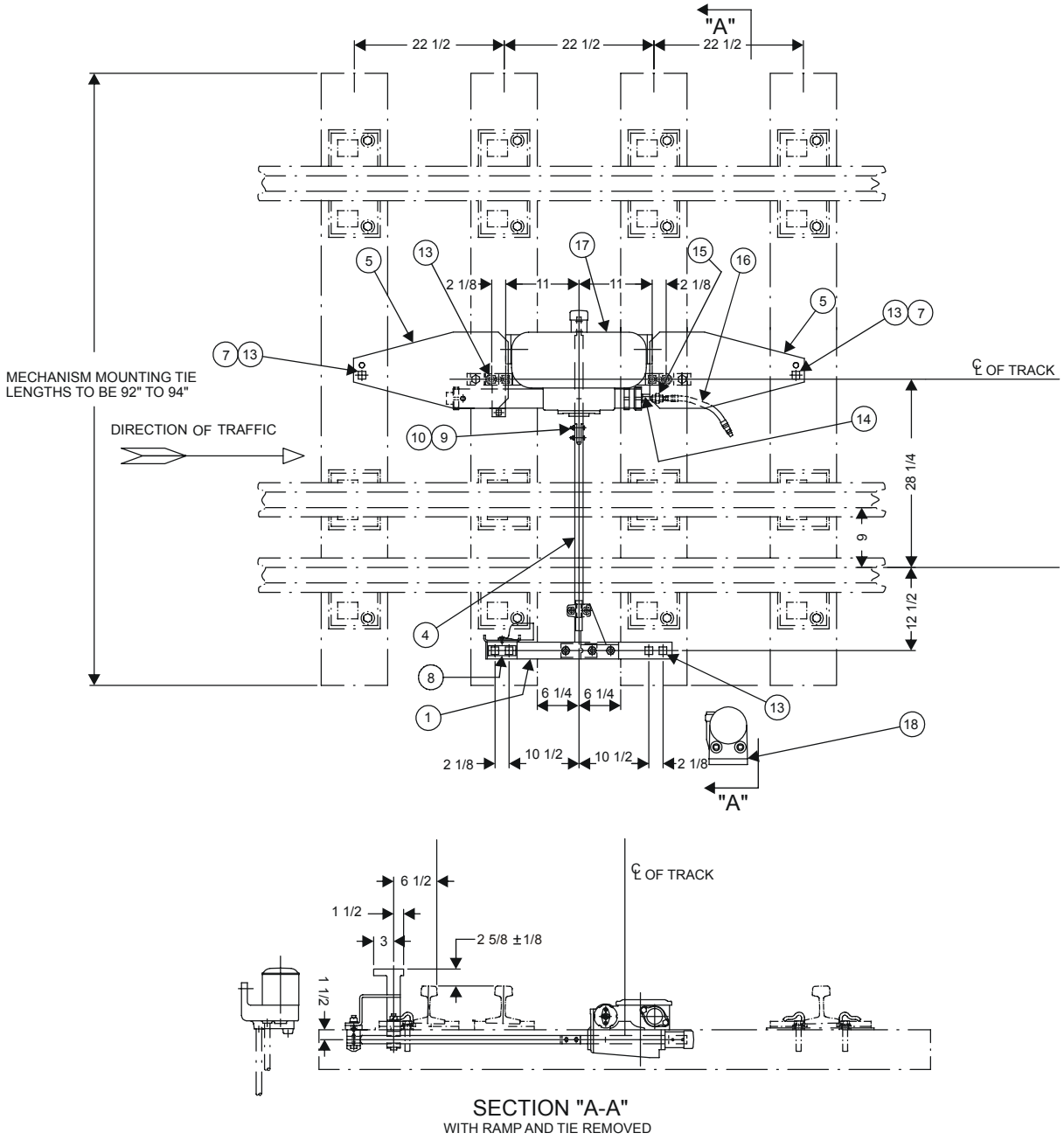
The train stops are lubricated at the factory to protect the bearing surfaces during shipment, or for a limited storage period. Before the unit is placed in service, the cylinder walls should be lubricated through the lubrication fittings while the stop mechanism is in the full Clear position, using Brake Cylinder Lubricant US&S Spec. M-7651-2 (Part No. A041353). The same lubricant may be used for the other bearings that are fitted with lubricating fittings.



NOTE: DIMENSIONS ARE IN INCHES

481001

Figure 2-1 - Typical Installation with Short Shaft
(See Table 2-1 for Parts Identification)



NOTE: DIMENSIONS ARE IN INCHES

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Figure 2-2 - Typical Installation with Long Shaft
(See Table 2-1 for Parts Identification)

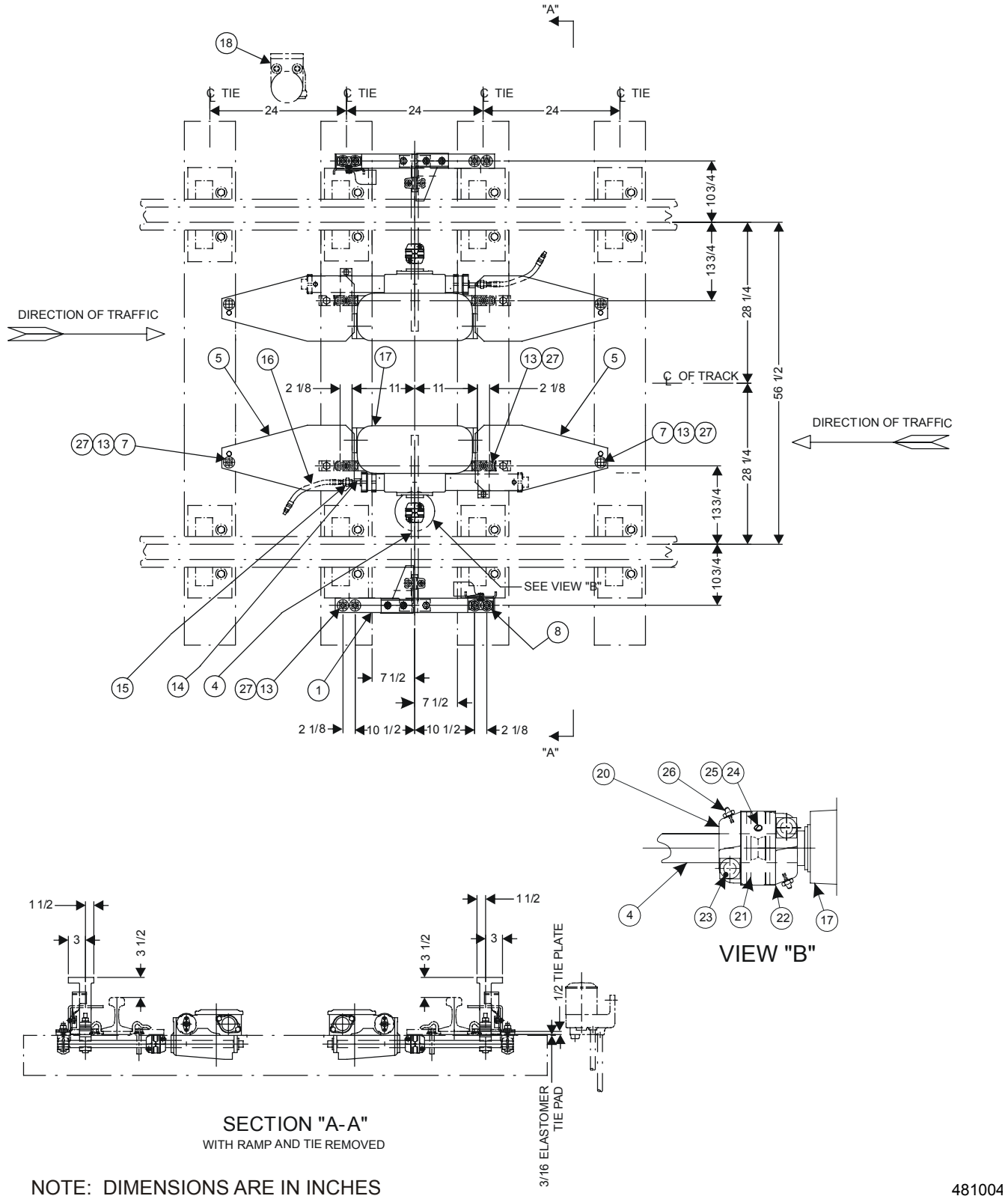
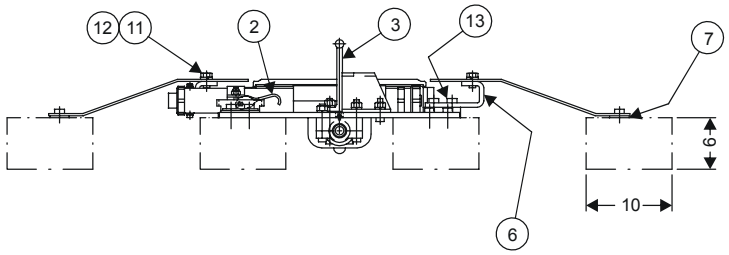
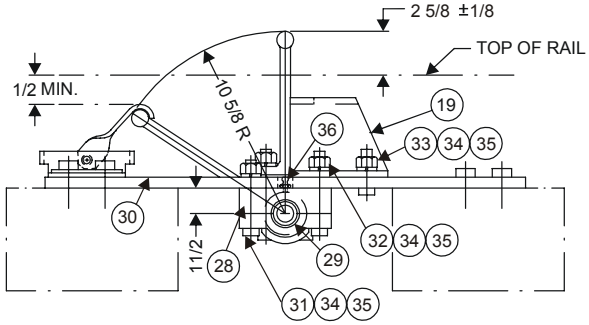


Figure 2-3 - Typical Installation – Dual Units

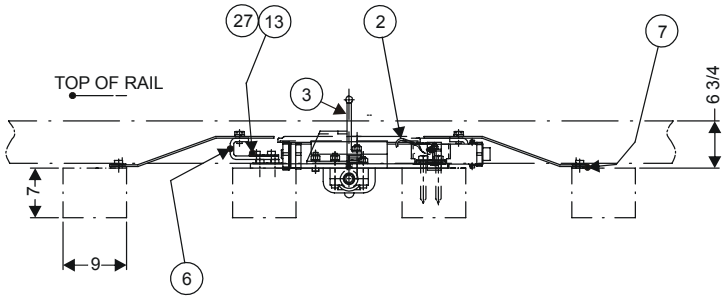
(See Table 2-1 for Parts Identification)



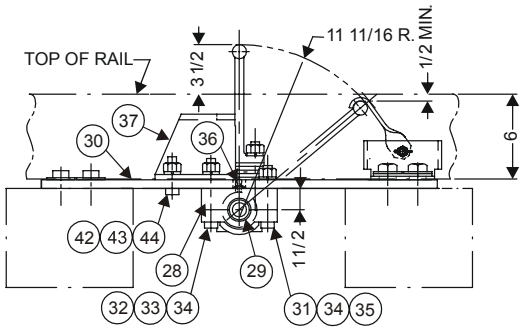
TYPICAL TRIPPER ARM - LONG OR SHORT SHAFT INSTALLATION



ENLARGED VIEW OF TYPICAL TRIPPER ARM - LONG OR SHORT SHAFT INSTALLATION



TYPICAL TRIPPER ARM - DUAL UNIT INSTALLATION



ENLARGED VIEW OF TYPICAL TRIPPER ARM - DUAL UNIT INSTALLATION

NOTE: DIMENSIONS ARE IN INCHES

Figure 2-4 - Typical Installation – Tripper Arm Details
(See Table 2-1 for Parts Identification)

Table 2-1 - Parts Identification for Figure 2-1 through Figure 2-4

Item Number	Description	Part Number	Reference Figure
1	Bearing	N433508001	2-1, 2-2
		N47900801	2-3
2	R.H. Hook and Bracket	N47900302	2-4
	L.H. Hook and Bracket	N47900701	2-4
3	Tripper Arm	N47900501	2-4
		N47900401	2-4
4	Shaft Extension	M4513714302	2-1
		M4513714303	2-2
		M47611501	2-3
5	Ramp	M186190002	2-1, 2-2, 2-3
6	Bracket, 1/2 x 1 3/4	M268863	2-4
7	Washer	M171462	2-1, 2-2, 2-3, 2-4
8	Plate, Washer	M312651	2-1, 2-2, 2-3
9	Screw, 5/16 x 2 Hex, Steel	J050045	2-1, 2-2
10	Nut, 5/16 Elas Stop	J048162	2-1, 2-2
11	Screw, 3/4 x 1” Hex Steel	J050123	2-4
12	Washer, 3/4 Lock, Steel	J047772	2-4
13	Screw, 3/4 x 6” Lag	J050347	2-1, 2-2, 2-3 2-4
14	Nipple, 1/4 x 2” Pipe	J328338	2-1, 2-2, 2-3
15	Union, 1/4 Pipe	J0327600112	2-1, 2-2, 2-3
16	Hose, 3/8 Conn	J075211	2-1, 2-2, 2-3
17	Stop Mechanism	N329366 N293126 N329366002	2-1, 2-2
		N329366001	2-3
18	Valve, Electro-Pneumatic	N394324	2-1, 2-2, 2-3
19	Stop Plate	M372920002	2-4
20	Coupling	M159655	2-3
21	Coupling	M163838	2-3
22	Cover	M163740-002	2-3
23	Bolt, 1/2 x 3 3/4 Sq	J046667	2-3
24	Screw, 10-32 x 3/8” Fil Hd	J522019	2-3
25	Washer, No. 10, Lock SS	J4751210109	2-3
26	Fitting – 1610BL Alem Hyd	J039137	2-3
27	Washer, 3/4” Steel	J047506	2-3, 2-4
28	Bearing, Cap and Stand	N178591	2-4
29	Bearing, Bronze Tubing	M155917	2-4

Item Number	Description	Part Number	Reference Figure
30	Bearing Support	M372925	2-4
31	Bolt, 5/8-11 x 4 Sq Head	J046706	2-4
32	Bolt, 5/8 x 4-1/2 Sq Head	J046708	2-4
33	Bolt, 5/8 x 2-1/4 Sq Head	J046699	2-4
34	Nut, 5/8-11 2B, Hex	J048020	2-4
35	Washer, 5/8 Steel, M1060 75	J047771	2-4
36	Fitting, 1610 Alem Hyd	J039137	2-4
37	Stop Plate	M372920003	2-4

3 Operation

3.1 Operating Mechanism

Air pressure applied to the cylinder (Item 5, Figure 5-3) exerts a force on the piston (Item 7, Figure 5-3) and thus on the rack (Item 6, Figure 5-3). When this force is sufficient to overcome the coil spring (Item 13, Figure 5-3), the piston and rack move through the cylinder, thereby compressing the coil spring until the 3-inch stroke is completed. The coil spring is retained in the end of the spring housing (Item 4, Figure 5-3) by an adjustable spring retainer (Item 11, Figure 5-3). The teeth of the rack engage a gear segment (Item 15, Figure 5-3) that is affixed to the shaft (Item 19, Figure 5-2), so the movement of the rack through the cylinder imparts a rotation of the shaft of approximately 60°. Also attached to the shaft is a cam (Item 18, Figure 5-2), the rotation of which actuates the rocker arms (Item 23, Figure 5-3), thereby shifting the position of the circuit controller contacts (Figure 1-2).

3.2 Circuit Controller

A stud, affixed to each shifter plate (Items 3 and 4, Figure 5-6), engages the rocker arms (Figure 4-3). The pivoting action of the rocker arms imparts a lateral movement to the shifter plates. Mounted on the shifter plates are the spring shifters (Items 5 and 6, Figure 5-6) that engage the moveable contact spring of each contact set.

The controller has a total of 10 contacts. Two of the contacts (numbers 1 and 10) are always made indicating Stop or Clear position. Of the remaining eight contacts, three (contacts 7 - 9) will be closed and five (contacts 2 - 6) will be open in the Stop position. In the Clear position this configuration is reversed – contacts 7 - 9 will be open and contacts 2 - 6 will be closed.

For a detailed description of the operation of the contacts, refer to Section 4.2.1.

4 Maintenance

4.1 Field Maintenance

4.1.1 Return Spring Compression Adjustment

The adjustment for the return spring is set so that the stop arm starts to clear when approximately 45 psi air pressure is applied to the piston; it moves to the full Clear position as the air pressure increases to 55 psi. With at least 55-psi air pressure in the cylinder, the stop arm will be in the Clear position.

When the air pressure in the cylinder is less than 55 psi but more than 45 psi, the stop arm should start moving toward the Stop position. It should reach the Stop position when the air pressure in the cylinder reaches approximately 30 psi.

Note

Before making any adjustments, the layout and mechanism should be checked carefully to ensure that there is no binding, excess friction due to lack of lubrication, or loss of air pressure due to leakage.

The compression on the return spring can be regulated by adjusting the nut of the spring retainer (Item 11, Figure 5-3) so that the above operating conditions are met.

CAUTION

The spring retainer should never be adjusted so as to expose any of the threads beyond the outer edge of the spring housing.

4.1.2 Lubrication

Regular and systematic lubricating is recommended at intervals of no more than six months. The period of time between lubricating depends upon climate, location, and frequency of operation, so it can be established by experience, but should not extend beyond six months. Refer to Figure 4-1 and Figure 4-2 for the train stop lubrication points.

The cylinder walls are lubricated through the lubricant fittings located on the side of the cylinders, while the mechanism is in the full Clear position, using Brake Cylinder Lubricant, US&S Spec. M-7651-2 (Part No. A041353). A small amount of lubricant may also be added periodically by removing one of the pipe plugs (Item 37 or 38, Figure 5-2 or Figure 5-3) in the cylinder head, and also through the plug hole above the rack and segment gear (Item 38, Figure 5-3). The same lubricant may be used for the other bearings that are fitted with lubricating fittings.

Light-weight motor oil is recommended for lubricating the circuit controller shifter plates. Several drops are to be put into the controller at each point indicated in Figure 4-1.

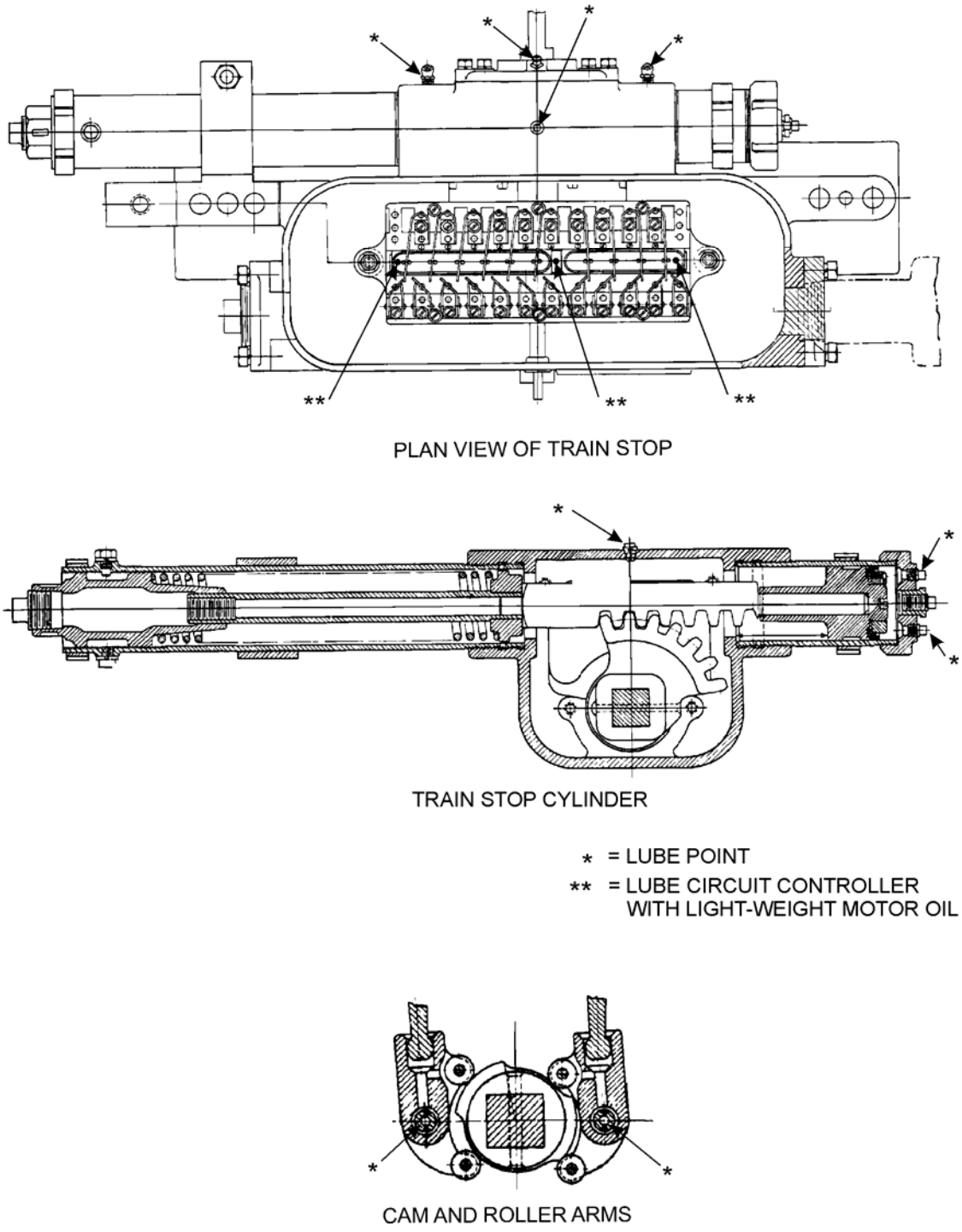

PLAN VIEW OF TRAIN STOP
TRAIN STOP CYLINDER
* = LUBE POINT
** = LUBE CIRCUIT CONTROLLER WITH LIGHT-WEIGHT MOTOR OIL
CAM AND ROLLER ARMS

Figure 4-1 - Lubrication Points for the Style "S" Electro-Pneumatic Train Stop

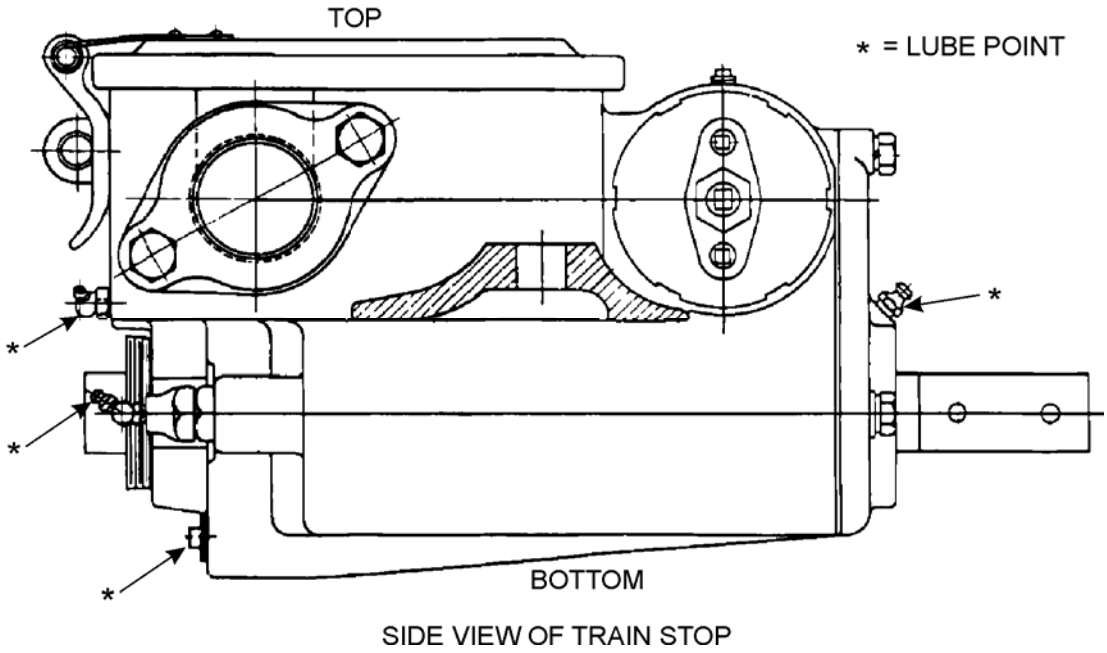


Figure 4-2 - Lubrication Points for the Style "S" Electro-Pneumatic Train Stop

In addition to lubricating the main train stop assembly, the bearings on the shafts are to be lubricated with the same lubricant as used on the train stop.

4.2 Shop Maintenance

For certain tests and adjustments, a test rack should be built consisting of two short ties that will give mounting conditions similar to a typical layout. This should include a removable indicator arm attached to the extended shaft (Item 4, Figure 2-2) and a dial plate mounted on a bracket also supported on the ties. The dial is to be calibrated in degrees from 0° (Stop) position to the 60° (Clear) position for the purpose of checking the stop arm positions, stroke, contact adjustment, etc.

4.2.1 Adjustments

4.2.1.1. Contact Springs

Note
No adjustments are required or recommended to contact spring N236209 (Long Fingered Contact Springs)

The long-fingered contact springs should be checked to ensure that:

1. All contact spring assemblies shall have a good soldered connection to the block.

2. All contact spring assemblies shall be in the same horizontal plane and in alignment with their mating springs.

3. The shifter plates (Items 3 and 4, Figure 5-6) must have completed their movement when the stop arm has come within 2° of its extreme position at either end of the stroke.

The following adjustments apply to Contact Springs N179246 (Short Fingered Contact Springs). (Refer to Table 4-1 for a summary of the settings described in the following steps.)

The short-fingered contact springs should be checked to ensure that:

1. Contacts that are closed when the stop arm is in the Stop position, shall open when the stop arm has reached the 5° to 10° position, with the exception of the number 1F contact (See Figure 1-2).

2. The number 1F contact should remain closed until the stop arm is in the 44° to 47° position, at which time the contact should be broken and remade on the back contact when and after the stop arm is in the 52° position.

3. The number 10B contact should be closed when and after the stop arm is in the 10° to 15° position.

4. The contacts that are closed when the arm is in the clear position should remain open to the 48° position and be dependably closed when and after the stop arm passes the 52° position.

5. Adjust the backstops to rest against the contact springs when the contact is not made. This is a pre-adjustment and is generally made prior to installation of contact spring N179246 into the train stop circuit controller.

Table 4-1 - Controller Contact Spring Settings
(Refer to Figure 1-2 for the Contact Spring Positions)

Spring Position	Closed	Transition	Open
1F	0° to 44°	44° to 47°	48° and Above
1B	Above 52°	48° to 52°	0° to 48°
2	Above 52°	48° to 52°	0° to 48°
3	Above 52°	48° to 52°	0° to 48°
4	Above 52°	48° to 52°	0° to 48°
5	Above 52°	48° to 52°	0° to 48°
6	Above 52°	48° to 52°	0° to 48°
7	0° to 5°	5° to 10°	Above 10°
8	0° to 5°	5° to 10°	Above 10°
9	0° to 5°	5° to 10°	Above 10°
10F	0° to 5°	5° to 10°	Above 10°
10B	15° and Above	10°to 15°	0° to 10°

Note - 0° corresponds to the “Stop” position on the tripper arm.

6. There should be 1-1/2 pounds to 3-1/2 pounds of pressure between the contacts when made. This is accomplished by using a spring bending tool to make slight adjustments to Contact Spring Assembly N179246 only.

7. Contacts, when adjusted properly, shall maintain a wipe of 1/32" to 3/32" and all similar contacts shall make and break at approximately the same time.

8. The insulation between all contacts, and between contacts and ground, must withstand a 1000 Vac ground test.

4.2.1.2. Return Spring Compression

For adjustment of the return spring, refer to Section 4.1.1.

4.2.2 Inspection and Cleaning

All surfaces of air passages and chambers should be thoroughly cleaned. The air cylinders should be inspected to see that they are free of pits and scores. To remove the piston, the cylinder cap (Item 10, Figure 5-3) must be removed and a 3/8"-16 bolt must be inserted in the tapped hole in the piston and then pulled out.

The rocker arms should operate freely and without binding on the cam. The lost motion (play) between the rocker arm (Item 23, Figure 5-3) and rollers, and the rollers and the cam (Item 18, Figure 5-2), should be between 0.003" and 0.016". The shifter plates should slide freely back and forth in the base plate.

When dismantling for inspection or cleaning, the spring housing (Item 4, Figure 5-3), rack (Item 6, Figure 5-3), and segment gear (Item 15, Figure 5-3) should be cleaned. When removing the spring and housing, a 3/4" x 6-1/2" hex head machine bolt (3" thread) and a 3/4" plate washer should be applied through the spring retainer (Item 11, Figure 5-3) onto the spring rod (Item 12, Figure 5-3).

To clean the circuit controller, dampen a lint-free cloth with an approved degreaser and wipe off any accumulated dirt from the assembly and the contacts. Clean any accumulations of dirt, etc., from wires and wire tags. Dry with a clean, lint-free cloth.

Note

If the contact springs or contacts show any signs of pitting, corrosion or general deterioration, they must be replaced.

4.2.3 Lubrication

All working faces such as cylinder walls, gears, pistons and piston rods are to be given a light coat of Brake Cylinder Lubricant, US&S Spec. M-7651-2 (Part No. A041353) when assembling. All packing grooves and lubricating fittings are to be filled under pressure using the same lubricant. (Refer to Figure 4-1 and Figure 4-2 for the lubrication points.) Check to ensure that the rocker arms are accepting grease when they are lubed. The remaining internal surfaces should be flushed using the same lubricant. All threads - such as on cylinder heads, piston, and nuts - are to be given a liberal coat of the lubricant before assembly.

In addition the bottoms of the circuit controller shifter plates should be lightly coated with light-weight motor oil.

4.2.3.1. Controller Lost Motion

To prevent excessive lost motion in the circuit controller, the gap between the rocker arm roller and the cam should be 0.003” to 0.016” (See Figure 4-3). To adjust this gap:

1. Loosen the bearing stud nuts.
2. Rotate the bearing stud with a 9/16" wrench until the desired gap is obtained.
3. Secure nuts to prevent rotation of the stud.
4. Repeat Steps 1 through 3 for other side.

CAUTION

Do not adjust the stud too tightly, otherwise damage will occur. As the cam rotates, the rocker must not cause any obstruction or binding.

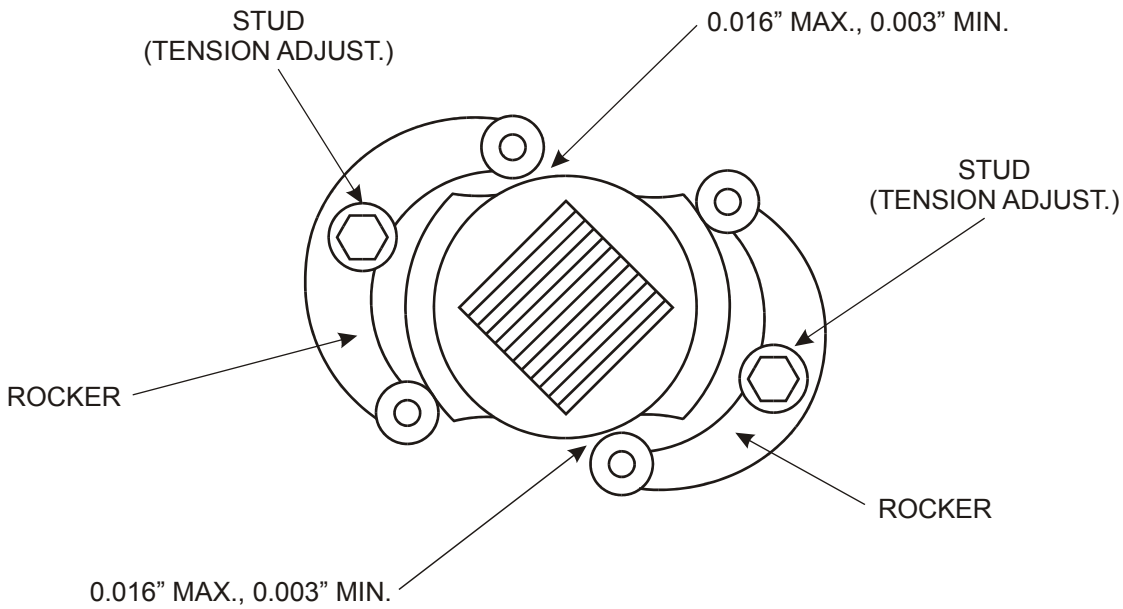


Figure 4-3 - Circuit Controller Cam/Rocker Motion Adjustment

5 Style "S" Electro-Pneumatic (E.P.) Train Stop Parts Lists

Table 5-1 - Model Number References for the Style "S" Train Stop

Reference	Description	Part Number
A	L.H. with Pipe Plug (55)	N329366
B	L.H. with Pipe Plug (55) and Heater	N329366-001
C	L.H. with Pipe Plug (55) and 2 Heaters	N329366-002*
D	L.H. with Pipe Plug, Cover Chain, or Shaft Cover	N293126*

Table 5-2 - Parts List for the Style "S" Train Stop (See Figure 5-1 through Figure 5-5)

Item Number	Description	Part Number	Used on Model Number (See Table 5-1)
1	Body, Complete	N186246	All
2	Circuit Controller	PN186327	All
3	Cover	PN186205	All
4	Spring Housing	R269066	All
5	Cylinder	R269067	All
6	Rack	M387688	All
7	Piston, Complete	PN387687	All
7a	Piston	M387592 (Included in Item 7)	All
7b	Packing Nut	M159667 (Included in Item 7)	All
7c	Follower	M182386 (Included in Item 7)	All
7d	Screw, 8-36 x 5/16", Flat Head	J052071 (Included in Item 7)	All
7e	Packing	J067407 (Included in Item 7)	All
8		Not Used	
9		Not Used	
10	Cap, Cylinder	M159646	All
11	Spring Retainer	M159647	All
12	Spring Guide Rod, Comp.	PN269081	All
12a	Spring Guide Rod	M269080 (Included in Item 12)	All

Item Number	Description	Part Number	Used on Model Number (See Table 5-1)
12b	Spring Retainer	M268941 (Included in Item 12)	All
13	Spring	J068527	All
14	Sleeve	M269029	All
15	Segment Gear	M159648	All
16	Bearing	M159645	All
17	Journal	M159641	All
18	Cam	M269040	All
19	Shaft	PN186449	A, B, C
	Shaft	M212651	D
20 – 21		Not Used	
22	Stud Bearing	M173206	All
23	Rocker Arm	PN161617	All
24	Bolt, 9/16” Hex Hd	M181972	All
25	Gasket	M162047	All
26	Cable, Outlet	M388563	All
27	Cable, Outlet	M388564	All
28	Screw, 3/8” – 16 x 1/2” Hex	J050049	All
29	Pin	M159741	All
30	Pin	M173217	All
31	Jam Nut	M169406	All
32	Screw	M269041	All
33	Nut, 7/8” Hex	M169407	All
34 – 36		Not Used	
37	Pipe Plug, 1/2” C.I.	J032903	All
38	Pipe Plug, 1/8” Stl. Sq. Hd.	J032900	All
39	Fitting, Lub., 1/8” P.T.	J039155	All
40	Fitting, Lub., 1/8” P.T.	J039137	All
41	Fitting Lub., 1/8” P.T.	J039142	All
42	Screw, 3/8” x 1-1/4”, Hex.	J050056	All
43	Pipe Plug, 1”, C.I., Sq. Hd.	J032907	All
44	Screw, 1/2” - 13 x 1-3/8”, Hex. Hd.	J050091	All
45	Pipe Thrd. Protector	J032927	All
46	Nut, 3/8” - 16, Hex.	J048009	All
47	Lock Washer, 3/8”, Stl.	J047768	All
48	Pipe Plug, 1/4”, Stl.	J032901	All
49	Reducing Bushing, 1/2” x 1/4”	J032022	All

Item Number	Description	Part Number	Used on Model Number (See Table 5-1)
50	Lock Washer, 1/2", Stl.	J047769	All
51 – 53		Not Used	
54 - 55	Plug, Black Pipe, 2" C.I.	J032915	All
56 - 58		Not Used	
59	Plug, Screw, 5/8" sq.	M385399	All
60	Coupling	M163839	D
61	Bolt, 1/2" x 3-3/4" Sq Head	J046667	D
62	Nut, 1/2", Steel	J048013	D
63	Lock Washer, 1/2" Stl	J047769	All
64	Washer, 3/8", Stl. PL.	J047502	All
66	Plate, Mtg.	M451563-7601	B, C
67	Resistor, 800 Ohm	N296580-001	B, C
68	Terminal Strip	J724780	B, C
69	Screw, 6 - 32 x 1/2", Fil. Hd.	J052244	B, C
70	Lock Washer, #6 Stl.	J475121-0107	B, C
71	Screw, 8 - 32 x 7/8", Rd. Hd.	J052603	B, C
72	Lock Washer, #8	J047714	B, C

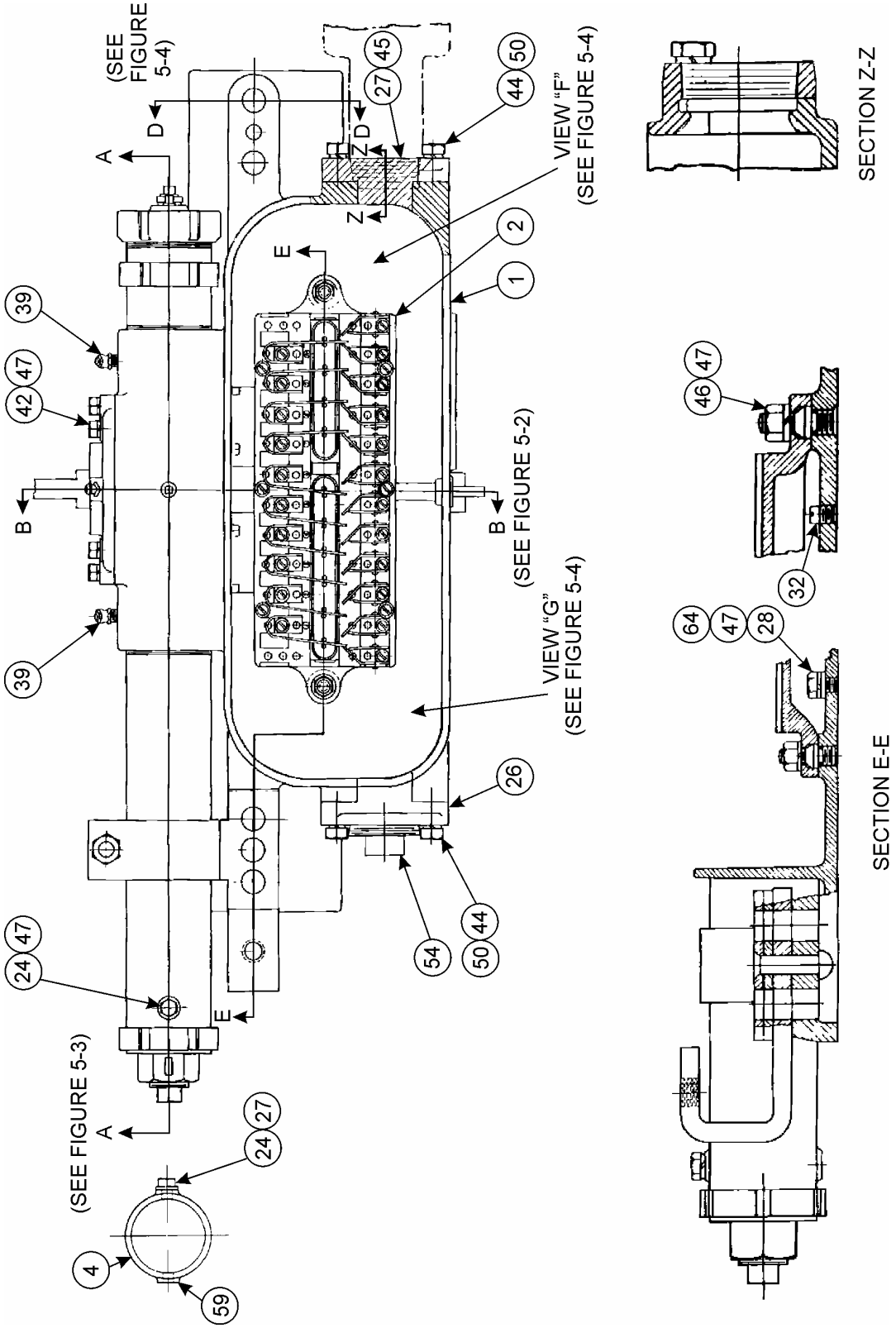


Figure 5-1 - Style "S" Train Stop Parts Breakdown (Sheet 1 of 5)
(See Table 5-2 for Parts Identification)

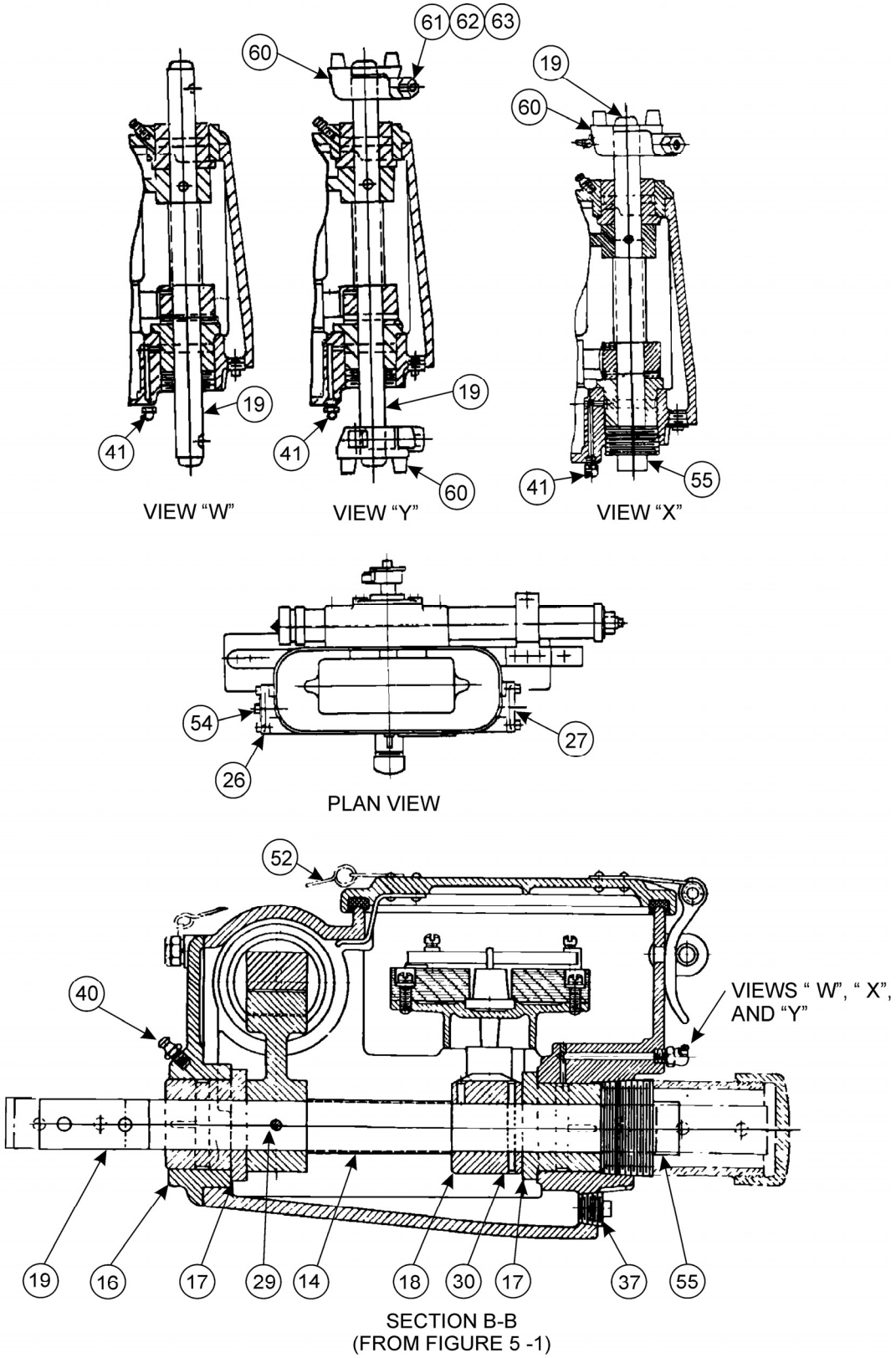


Figure 5-2 - Style "S" Train Stop Parts Breakdown (Sheet 2 of 5)
(See Table 5-2 for Parts Identification)

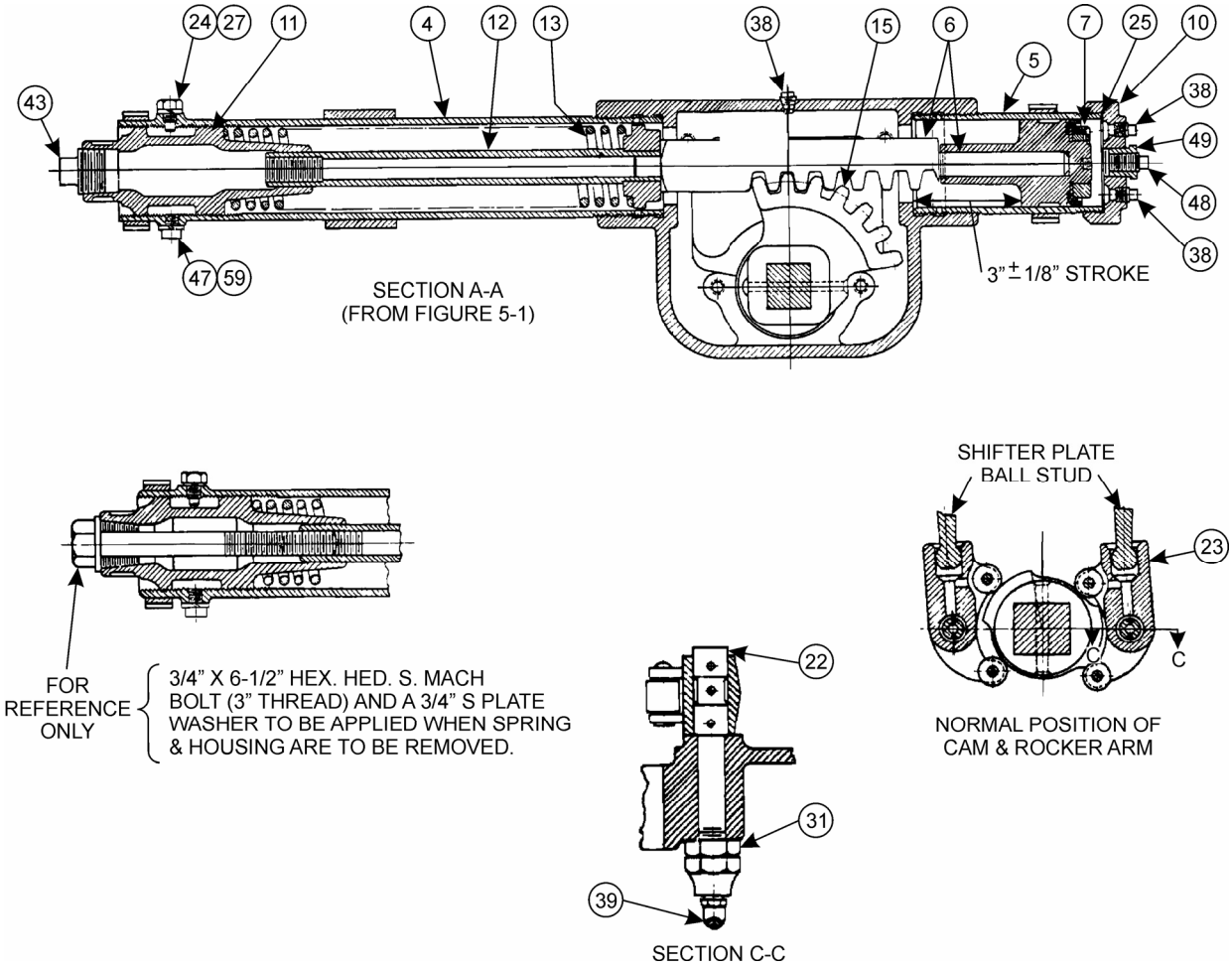


Figure 5-3 - Style "S" Train Stop Parts Breakdown (Sheet 3 of 5)
(See Table 5-2 for Parts Identification)

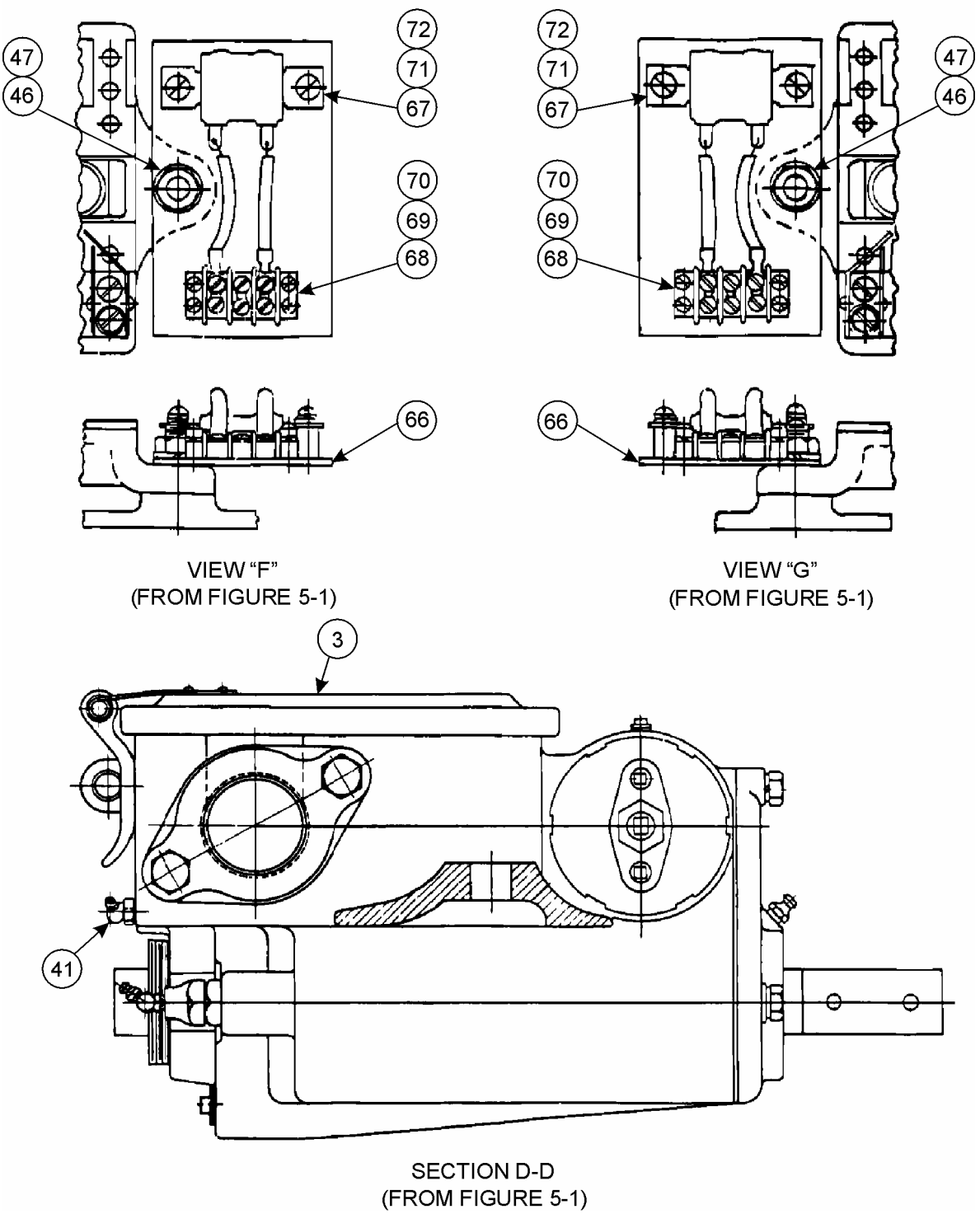


Figure 5-4 - Style "S" Train Stop Parts Breakdown (Sheet 4 of 5)
(See Table 5-2 for Parts Identification)

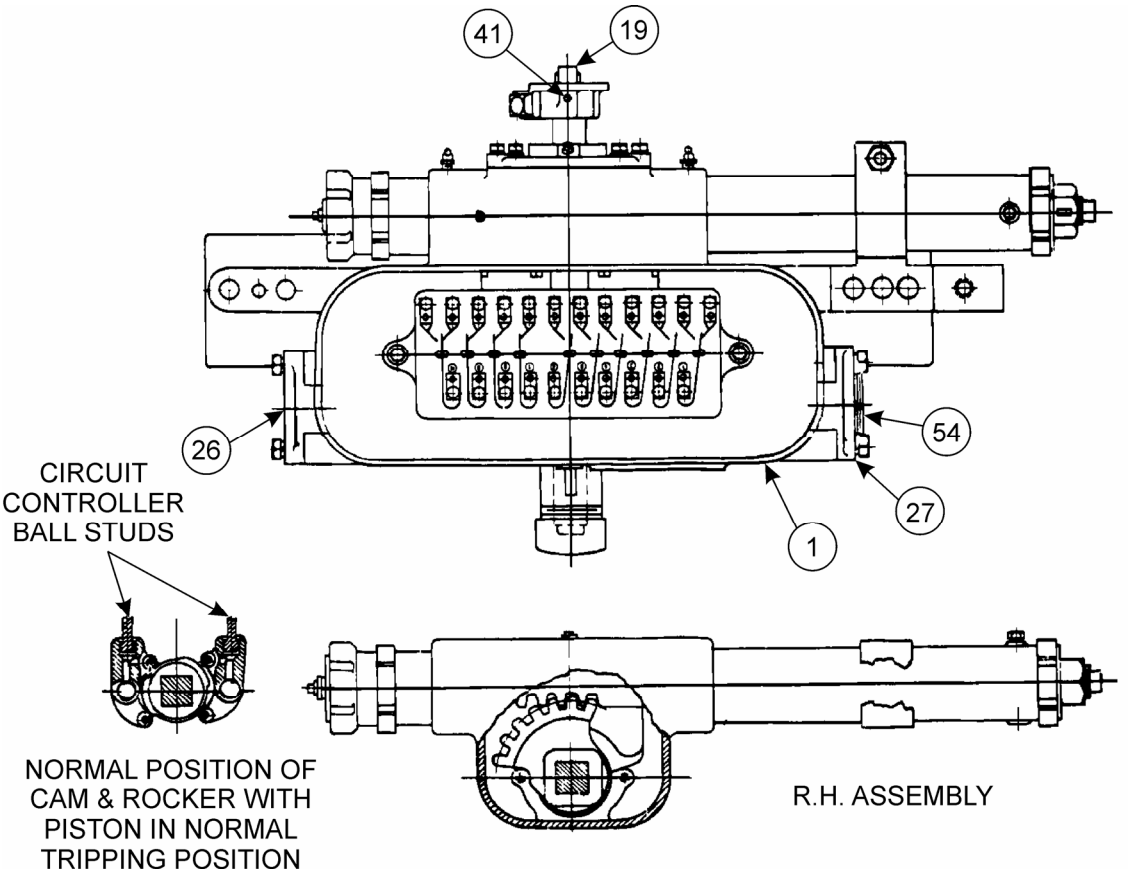


Figure 5-5 - Style "S" Train Stop Parts Breakdown (Sheet 5 of 5)
(See Table 5-2 for Parts Identification)

Table 5-3 - Parts List for the Circuit Controller (N186327) (Figure 5-6)

Item Number	Description	Part Number
1	Base Plate	M156355
2	Shifter Plate, Comp.	R186340
3	Shifter Plate	R186338
4	Spring Shifter, Molded	J078183
5	Spring Shifter, Molded	J078182
6	Board, Cir. Cont.	N323952
7	Board, Cir. Cont.	N323953
8	Insulation, Micarta	M159663
9	Screw, 14 – 24 x 5/8”, Fil Hd.	J051341
10	Screw, 10 – 32 x 1/2”, Fl. Hd.	J052091
11	Washer	M036073
12	Lock Washer, 1/4”, High Collar	J047521
13	Contact Spring with Straight Backstop	N179246
14	Contact Spring	N236209

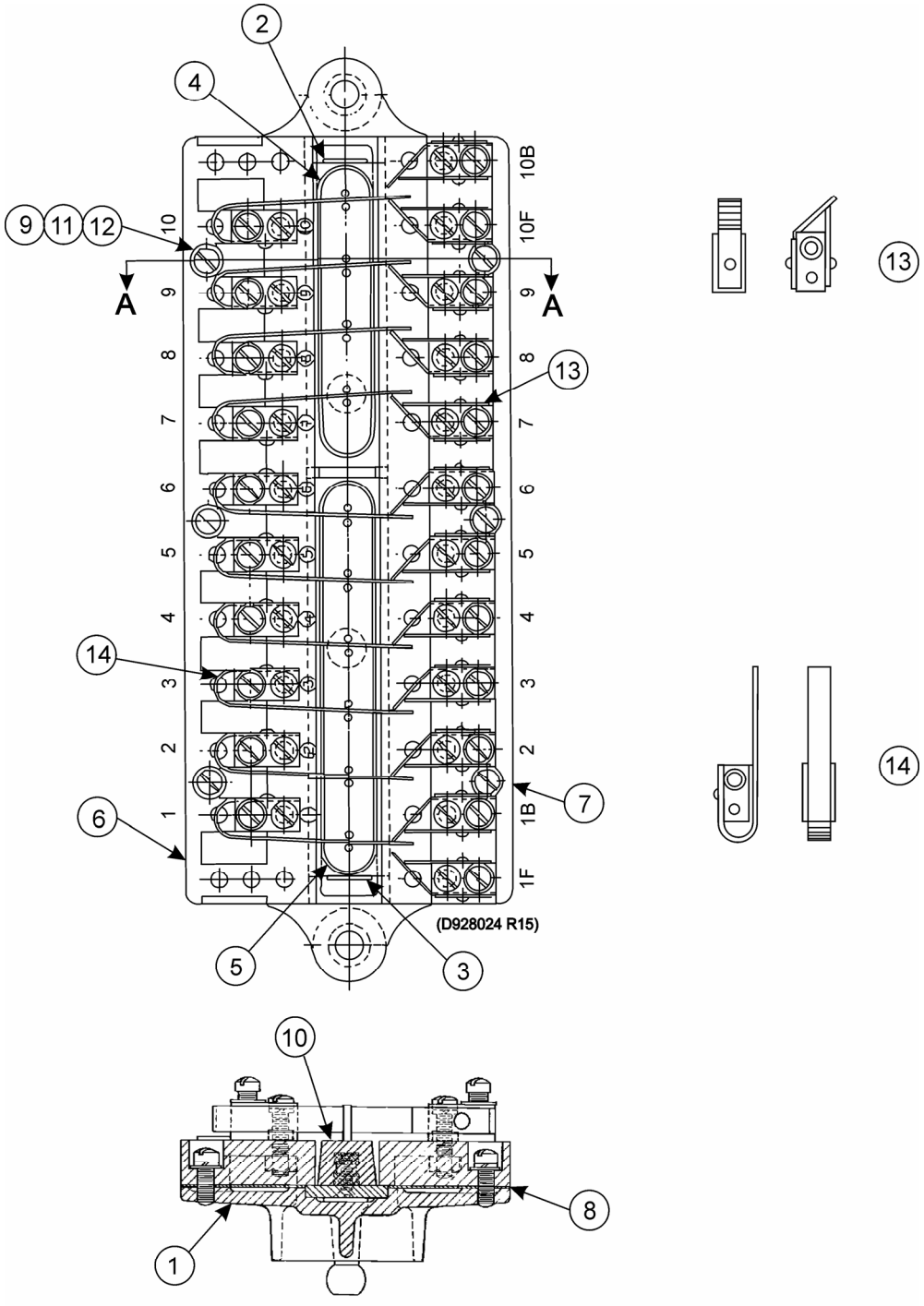


Figure 5-6 - Circuit Controller Parts Breakdown

6 Technical Support

The Rapid Action Information Link Team (RAIL Team) is a group of experienced product and application engineers ready to assist you to resolve any technical issues concerning this product. Contact the RAIL Team at 1-800-652-7276 or by e-mail at railteam@switch.com.